methods and branches of industry have been introduced, as for instance the production of superior steel and iron alloys. 327

The development of the power-station on the Dnipro entailed a certain change in the location of heavy industry. And the ratio of coal to iron per manufactured unit which was 2.8 : 1 before World War I became 1.6 : 1, though it is still more practicable to transport high quality ores to coal than vice-versa. The Dnipro power-station, however, which is more favorably situated as regards markets and consumption is attracting new foundations of enterprises in heavy industry. This is particularly true of Zaporizha. 371 327

5. Production of Machinery and Metal Goods

Even before World War I, markets were favorable for the production of machinery, above all for agricultural purposes which accounted for the work done for private customers in 126 plants. But modern, large factories were not built till after the war. New branches of production were started, e. g. for motor-cars and tractors (see huge factory in Kharkiv), machinery for mines and precision instruments while the construction of engines and railway trucks increased. The largest factories are in the Donets Combine and in the three large towns; the manufacture of agricultural machines is also distributed over other areas. 392

The non-ferrous metal industry is poorly represented. Between 1914 and 1928 there was practically no increase in the production of mercury (41 000 to 42 000 t). In the Kuban area in 1913 3 000 t zinc and 1 350 t lead were produced; in 1932 these figures were 5 000 and 3 500 t lead respectively. Under the first Five Year Plan zinc factories were erected in connection with the chemical works in Konstantynivka and aluminium works in Kichkas near the power plant on the Dnipro Bend. The annual production of the latter is estimated at 40 000 t. Fuel or power requirements play a greater part than the transportation of raw materials. The production of metal goods is confined to small factories. 328

in agriculture (fertilizers) and in other branches of the economy. There are several superphosphate plants on the right bank, a large soda industry in the Artemovsk-Lisichansk area in the north of the Donets Basin, based on local salt deposits, chemical plants tied closely to the coking and the metallurgical establishments, and sulphuric acid and fertilizer plants connected with the metallurgy of zinc.

In addition to zinc, which is imported into the Donets Basin, nonferrous metallurgy includes that of aluminum, which is also imported and worked at Zaporozh'ye on the basis of *Dneproges* power, and of mercury, mined near Nikitovka in the Donbas.

The petroleum and natural-gas industry is of only local importance and is intended to supply the Ukraine with its gas and liquid fuel needs. The oil fields lie in the foothills of the Carpathians, near Borislav and Drogobych. During the current Plan, a natural gas pipe line was laid from Dashava (in the oil fields) to Kiev. The Ukraine also imports petroleum from Baku via the ports of Osipenko and Odessa, and the station of Trudovaya (Donbas) is the terminus of a kerosene pipe line from the Groznyy fields.

The textile industry (wool, cotton, and linen milling) supplies only local needs. The food industry, on the other hand, is of national importance. This is true especially of the sugar-refining industry, located mainly in the Vinnitsa and Kiev oblasts, on the right bank, and in the Poltava and Kiev oblasts, on the left bank.

The agriculture of the Ukrainian SSR, less important than heavy industry with respect to the value of production, occupies, nonetheless, a major position in the economy of the USSR. Arable land occupies 60 percent of the total area. Prior to the Second World War the Ukraine was one of the regions best equipped with machine-tractor stations and agricultural machinery. Among the cereals, winter wheat in the west, spring wheat in the east, and barley are most important. The sugar beet is by far the major industrial crop; sunflower, cotton, and tobacco are grown to a lesser extent. Orchard farming is popular and produces melons and pumpkins, garden fruits (apples, pears, plums, and cherries), and in the south, apricots and grapes. Horses, cattle, and pigs are raised throughout the region.

The right-bank Poles'ye is least developed agriculturally. Marshes and forests occupy most of the area. In the isolated patches of moist arable land, potatoes, buckwheat, flax, and hemp are the chief crops. The area abounds, however, in pasture land, and dairy farming is